

EXHIBIT A

Curriculum Vitae
Updated March 6, 2012

PERSONAL INFORMATION:

Name: Carol Getker Shores, MD, PhD, FACS

Work Address: Department of Otolaryngology/Head & Neck Surgery
University of North Carolina
CB#7070
Chapel Hill, NC

Home Address: 203F Barclay Rd
Chapel Hill, NC 27516

Phone: (W) 919-966-3342
e-mail: shores@med.unc.edu

EDUCATION:

Residency	1996-2000	University of North Carolina, Division of Otolaryngology/Head and Neck Surgery, Department of Surgery, Chapel Hill, NC
Internship	1995-1996	University of North Carolina, Department of Surgery, Chapel Hill, NC
MD	1995	University of North Carolina School of Medicine, Chapel Hill, NC
Post Doctoral Fellow	1988-1991	Glaxo Research Institute, Department of Cell Biology Advisor: Dr. Tona Gilmer (Assistant Research Professor, Division of Otolaryngology/ Head and Neck Surgery, University of North Carolina, Chapel Hill, NC)
PhD	1988	University of North Carolina, Department of Biochemistry Thesis title: Biochemical and cellular analysis of pp60 ^{src} related tyrosine kinases in neural tissues. Advisor: Dr. Patricia Maness
BS	1981	University of Florida, Major: Microbiology, with <i>High Honors</i>
AA	1978	St. Petersburg Junior College, Major: Zoology, with <i>Honors</i>

Certification/Licensure:

Board Certified, American Board of Otolaryngology. Certificate number: 16465

North Carolina Medical License number: 0096-01473

Malawi General Practitioner, Registration No. MCM/MP/1583, Certificate No: 1683

PROFESSIONAL EXPERIENCE – EMPLOYMENT HISTORY:

Associate Professor Surgery,	2006 – present	Department of Otolaryngology/Head and Neck University of North Carolina School of Medicine, Chapel Hill, NC
Associate Professor	2008-2010	WakeMed Faculty Physicians Raleigh, NC
Assistant Professor Surgery,	2000 – 2006	Department of Otolaryngology/Head and Neck University of North Carolina School of Medicine, Chapel Hill, NC

HONORS AND AWARDS:

Inductee into the YWCA Academy of Women in Science and Technology. The mission of the YWCA of the Greater Triangle Area is to empower women and eliminate racism. 2009

Elected to the University of North Carolina School of Medicine Academy of Educators as a Fellow, March 2007

American Academy of Otolaryngology-Head and Neck Surgery Honor Award, June 2005

Lloyd Storrs Resident Research Award, American Laryngological, Rhinological and Otological Society Southern Section Meeting, Received by Adam Zanation PGY3, January 2005

Excellence in Teaching Award, University of North Carolina School of Medicine, 2004 and 2002

Moderator, Annual Meeting of the American Head and Neck Society, Nashville, TN, 2003

Winner of the resident research award Annual Meeting of the American Academy of Otolaryngology/Head and Neck Surgery, Received by Kathy Yu PGY3, Denver, CO, September 2001.

Selected to attend the ASCO/AACR Workshop: Methods in Clinical Cancer Research, July 28-August 9, 2001

Moderator, Annual Meeting of the American Academy of Otolaryngology-Head and Neck Surgery, Denver, CO, 2001

Best Poster Presentation, American Laryngological, Rhinological, and Otological Society, Southern Section Meeting, 2000

G. Slaughter Fitz-Hugh Award for most excellent research paper presented to the American Laryngological, Rhinological and Otological Society Southern Section Meeting, January 1998.

Alpha Omega Alpha, 1994

Heusner Pupil Award. One of six rising fourth-year medical students who "show a great capacity to grasp the principles of science, to heal the sick, to comfort the troubled, to be humble before God." Academic year 1993-94.

Medical Alumni Loyalty Fund Scholar. One of three students chosen for academic excellence, service to humanity, breadth of personal and educational experiences and evidence of financial need. Academic year 1993-94.

Academic Merit Award with Honors. Top 15% of class. Academic years 1993-94, 1992-93 and 1991-92.

Herbert H. Fritz Special Merit Award for outstanding academic achievement. Academic year 1991-92.

BIBLIOGRAPHY:

Contributions to Textbooks:

Shah RN, Cannon T and Shores CG. Infections and Disorders of the Neck and Upper Airway. In: Emergency Medicine: A Comprehensive Study Guide, 7th Edition. Tintinalli JE, Stapczynski JS, Ma OJ, Cline D, Cydulka R and Meckler G (eds.). New York: McGraw-Hill, (Pub date Oct 2010)

Patel MR, Cannon T and Shores CG. Complications of Airway Devices. In: Emergency Medicine: A Comprehensive Study Guide, 7th Edition. Tintinalli JE, Stapczynski JS, Ma OJ, Cline D, Cydulka R and Meckler G (eds.). New York: McGraw-Hill, (Pub date Oct 2010)

Refereed Journal Articles:

Wolf LL, Ibrahim R, Miao C, Muyco A, Hosseinipour MC and Shores C.
Esophagogastroduodenoscopy in a public referral hospital in Lilongwe, Malawi: spectrum of disease and associated risk factors. *World J Surgery*, 2012 Feb 29. [Epub ahead of print] PMID 22374539

Fried D, Khandani A, Shores C, Weissler M, Hayes N, Hackman T, Rosenman J and Chera BS Matched Cohort Analysis of the Effect of Pre-treatment Positron Emission Tomography on Clinical Outcomes of Head and Neck Cancer Patients Treated with Definitive Chemoradiotherapy, *Head and Neck* 2012 34(3):412-7

Deal AM, Patel MR, Thorp BD, Cannon TY, Shores, CG, Zanation AM. Liver Function Tests: Inadequate Screening modality for Detection of Liver Metastasis in Head and Neck Carcinoma. *Otolaryngol Head Neck Surg.* 2012;146(1):88-91 PMID: 21987648

Apisarnthanarax S, Dhruva N, Ardeshirpour F, Tepper J, Shores C, Rosenman JG, Shockley WW, Hayward M and Hayes DN. Concomitant Radiotherapy and Chemotherapy for High Risk Nonmelanoma Skin Carcinomas of the Head and Neck, *Int J Surg Oncology* 2011;2011:464829. Epub 2011 Sep 25. PMID 22312508

Samuel JC, Qureshi JS, Mulima G, Shores CG, Cairns BA, Charles AG An Observational Study of the Etiology, Clinical Presentation and Outcomes Associated with Peritonitis in Lilongwe, Malawi. *World J Emerg Surg* 2011 6:37 PMID:22067899

Smyth JK, Deal AM, Huang B, Weissler M, Zanation A, and Shores C Outcomes of Head and Neck Squamous Cell Carcinoma Patients with N3 Neck Disease Treated Primarily with Chemoradiation versus Surgical Resection. *Laryngoscope* 2011;121:1881-1887

Ang MK, Patel MR, Yin XY, Sundaram S, Fritchie K, Zhao N, Liu Y, Freemerman AJ, Wilkerson M, Walter V, Weissler MC, Shockley WW, Couch MB, Zanation AM, Hackman T, Chera BS, Harris SL, Miller CR, Thorne LB, Hayward MC, Funkhouser WK, Olshan AF, Shores CG, Makowski L and Hayes DN. High XRCC1 Expression Is Associated With Poorer Survival In Patients With Head And Neck Squamous Cell Carcinoma, *Clinical Cancer Research* 2011;17(20):6542-52 PMID:21908577

Patel MR, Stadler ME, Deal, Kim HS, Shores CG, MD, PhD, Zanation AM. *STT3A, C1orf24, TFF3*: Putative Markers for Characterization of Follicular Thyroid Neoplasms from Fine Needle Aspirates, *Laryngoscope*, 2011 121:983-9 PMID:21520112

Patel SC, Couch M, Weissler M, Shores C, Hackman T, Zanation A, Hayes DN, Chera BS. Increasing Incidence Trends of Squamous Cell Carcinoma of the Oral Tongue in Young White Females, ages 18-44 *J Clinical Oncol*, 2011 29(11):1488-94 PMID:21383286

Qureshi JS, Samuel J, Lee C, Cairns B, Shores C and Charles AG. Surgery and Global Public Health: The UNC-Malawi Surgical Initiative as a Model for Sustainable Collaboration. *World J Surgery* 2011 35:17-21.

Yin X, Hayes DN, Shores CG. Antitumor activity of enzastaurin as radiation sensitizer in head and neck squamous cell carcinoma. *Head & Neck* 2010 33(8):1106-14 PMID: 20967867.

Tang W, Harmon P, Gulley ML, Mwansambo C, Kazembe PN, Martinson F, Wokocha C, Kenney SC, Hoffman I, Sigel C, Maygarden S, Hoffman M and Shores C. Viral Response to Chemotherapy in Endemic Burkitt Lymphoma. *Clin Cancer Res*. 2010 Apr 1;16(7):2055-64 PMID: 20233888

Yin X, Zhang H, Lundgren K, Wilson L, Burrows F and Shores CG. BIIB021, A Novel Hsp90 Inhibitor, Sensitizes Head And Neck Squamous Cell Carcinoma To Radiotherapy. *Int J Cancer*. 2010 Mar 1;126(5):1216-25 PMID: 19662650.

Andrews E, Shores C, Hayes DN, Couch M, Southerland J, Morris D, Seaman WT, Webster-Cyriaque J. Concurrent human papillomavirus-associated tonsillar-carcinoma in 2 couples *J Infect Dis*. 2009 Sep 15;200(6):882-7. PMID: 19678755

Patel MR, Bryson PC, Shores CG, Hart CF, Thorne LB, Deal AM, Zanation AM. Trefoil factor 3 immunohistochemical characterization of follicular thyroid lesions from tissue microarray. *Arch Otolaryngol Head Neck Surg*. 2009 135(6):590-6. PMID: 19528408

Roberts J, Shores C and Rose AS, Surgical treatment warranted in aggressive central giant cell granuloma: a report of two cases, *Ear Nose Throat J*. 2009 88:E8-E13 PMID: 19291624

Bryson P, Shores C, Hart C, Thorne L, Patel M, Richey L, Farag A and Zanation A. Immunohistochemical Distinction of Follicular Thyroid Adenomas and Follicular Carcinomas. *Archive of Otolaryngology-Head & Neck Surgery* 2008 134:581-6 PMID: 18559722

Lee S, Shores C and Weissler M. Surgical salvage after failed primary concomitant chemoradiation, *Current Opinion in Otolaryngology and Head & Neck Surgery* 2008 16:135-40 PMID: 18327032

Cannon T, Shores C, Yin X, Dahlman J, Guttridge D, Lai V, George J, Buzkova P, Couch M. Immunocompetent murine model of cancer cachexia for head and neck squamous cell carcinoma. 2008 *Head Neck*. 30:320-6 PMID: 17657796

Lai V, George J, Richey L, Kim HJ, Cannon T, Shores C and Couch M. Results of a pilot study of the effects of celecoxib on cancer cachexia in patients with cancer of the head, neck and gastrointestinal tract, 2008 *Head & Neck* 30:67-74 PMID: 17615567

Cannon TY, Guttridge D, Dahlman J, George JR, Lai V, Shores C, Buzková P and Couch ME, The Effect of Altered Toll-like Receptor 4 Signaling on Cancer Cachexia. *Arch Otolaryngol Head Neck Surg.* 2007 133:1263-9 PMID: 18086970

Cannon T, Couch M, Yin X, Guttridge D, Lai V and Shores C. Comparison of Animal Models for Head and Neck Cancer Cachexia, 2007 *Laryngoscope* 117:2152-8 PMID: 17921906

Richey LM, George JR, Couch ME, Kanapkey BK, Yin X, Cannon T, Stewart PW, Weissler MC, Shores CG. Defining Cancer Cachexia in Head and Neck Squamous Cell Carcinoma, 2007 *Clinical Cancer Research*, 13:6561-6567 PMID: 18006755

George J, Cannon T, Lai V, Richey L, Zanation A, Hayes DN, Shores C, Guttridge D and Couch M. Cancer cachexia syndrome in head and neck cancer patients Part II. Pathophysiology, *Head & Neck* 2007, 29:497-507 PMID: 17390378

Couch M, Lai V, Cannon T, Guttridge D, Zanation A, George J, Hayes DN, Zeisel S and Shores C. Cancer cachexia syndrome in head and neck cancer patients Part I. Diagnosis, impact on quality of life and survival and treatment, *Head & Neck* 2007, 29:401-11 PMID: 17285641

Richey LM, Shores CG, George J, Lee S, Couch MJ, Sutton DK, Weissler MC. The effectiveness of salvage surgery after the failure of primary concomitant chemoradiation in head and neck cancer, *Otolaryngology-Head and Neck Surgery* 2007, 132:98-103 PMID: 17210342

Richey LM, Olshan AF, George J, Shores CG, Zanation AM, Cannon T and Weissler MC. Incidence and survival rates for young blacks with nasopharyngeal carcinoma in the United States. *Arch Otolaryngol Head Neck Surg.* 2006, 132:1035-40 PMID: 17043247

Knoll C, Smith R, Shores C and Blatt J. Hearing Genes and Cisplatin Deafness: a Pilot Study, *Laryngoscope*, 2006, 116:72-4 PMID: 16481813

Zanation AM, Sutton DK, Couch M, Weissler MC, Shockley W and Shores CG. Accuracy, and Implications for Patient Management of [18F]-2-Fluorodeoxyglucose-Positron Emission/Computerized Tomography (PET/CT) for Head and Neck Tumors, *Laryngoscope*, 2005;115:1186-90 PMID: 15995504

Moss JR, Zanation AM and Shores CG. ACE Inhibitor Associated Recurrent, Intermittent Parotid Gland Swelling *Otolaryngology-Head and Neck Surgery*, 2005;133:992-4 PMID: 16360530

Yin X, Zhang H, Burrows F, Zhang L and Shores CG. Potent Activity of a Novel Dimeric Hsp90 inhibitor Against Head and Neck Squamous Cell Carcinoma *In Vitro* and *In Vivo*, *Clinical Cancer Research*, 2005; 15:3889-96 PMID: 15897590

Zanation AM, Yin X, Shores CG and Yarbrough WG. Phenotypic and Microarray Gene Expression Analysis of Tri-Dimensional Raft Modeled Human Head and Neck Squamous Cell Carcinoma *Otolaryngology-Head and Neck Surgery*, 2004;131:577-84 PMID: 15523429

Shores CG, Yin X, Yarbrough WG. Clinical Evaluation of a New Molecular Method for Detection of Micrometastases in Head and Neck Squamous Cell Carcinoma *Archives of Otolaryngology/Head and Neck Surgery*, 2004;130:937-942 PMID: 15313863

Cullen RD, Buchman CA, Brown CJ, Copeland BJ, Zdanski C, Pillsbury HC, Shores CG. Cochlear Implantation for Children with *GJB2*-Related Deafness *Laryngoscope*, 2004;114:1415-1419 PMID: 15280719

Chung CH, Parker JS, Karaca G, Wu J, Funkhouser WK, Moore D, Butterfoss D, Xiang D, Zanation A, Yin X, Shockley WW, Weissler MC, Dressler LG, Shores CG, Yarbrough WG and Perou CM. Molecular Classification of Head and Neck Squamous Cell Carcinoma using Patterns of Gene Expression *Cancer Cell* 2004;5:489-500 PMID: 15144956

Becker MT, Yu KK, Shores CG, Yarbrough WG. Molecular assay to detect metastatic head and neck squamous cell carcinoma. *Archives of Otolaryngology/Head and Neck Surgery*. 2004;130: 21-7 PMID: 14732763

Yu KK, Mukherji S, Carrasco V, Pillsbury HC, Shores CG. Molecular Genetic Advances in Semicircular Canal Abnormalities and Sensorineural Hearing Loss: A Report of 16 cases. *Otolaryngology-Head and Neck Surgery*. 2003;129:637-46 PMID: 14663429

Harris SJ, Wald ER, Senior BA, Shores CG, Garbutt JM, Littenberg B, Gellman E. The sinusitis debate. *Pediatrics* 2002;109:166-7 PMID: 11773564

Meredith SD, Shores CG, Carrasco VN and Pillsbury HC. Management of the carotid artery at the skull base. *Am J Otolaryngol* 2001;22:336-42 PMID: 11562885

Downs BW, Shores CG, and Drake AF. Choristoma of the nasopharynx. *Otolaryngology-Head and Neck Surgery* 2000;123:523 PMID: 11020203

Hutchen M, Shores CG, Bauer MS and Yarbrough WG. Sinogenic subdural empyema and *Streptococcus anginosus*. *Arch Otolaryngol Head Neck Surgery* 1999;125:1262-1266 PMID: 10555700

Shores CG and Yarbrough WG. Three-dimensional xenograft model of dysplastic human laryngeal mucosa. *Laryngoscope* 1998;108:1358-1362 PMID: 9738757

Yarbrough WG, Shores CG, Witsell D, Fidler M, Weissler MC and Gilmer TM. Ras mutations and expression in head and neck squamous cell carcinomas. *Laryngoscope* 1994;104,11:1337-1347 PMID: 7968162

Dearry A, Falardeau P, Shores CG and Caron MG. D2 dopamine receptors in the human retina: cloning of cDNA and localization of mRNA. *Cell Mol Neurobiol* 1991;11:437-53 PMID: 1835903

Biscardi JS, Shores CG and Maness PF. Elevated protein tyrosine phosphorylation in the optic tract of the chick embryo. *Curr Eye Res* 1991;10:11218 PMID: 1802613

Maness PF, Shores CG and Ignelzi M. Localization of the normal cellular src protein to the growth cone of differentiating neurons in brain and retina. *Adv Exp Med Biol* 1990;265:117-126 PMID: 1696060

Shores CG and Maness PF. Tyrosine phosphorylated proteins accumulate in junctional regions of the developing chick neural retina. *J Neurosci Res* 1989;24:59-6 PMID: 2478721

Maness PF, Aubry M, Shores CG, Frame L, and Pfenninger KH. c-src gene product in developing rat brain is enriched in nerve growth cone membranes. *Proc Natl Acad Sci USA* 1988;85:5001-5005 PMID: 2455889

Hillsgrove DC, Shores CG, Parker JC and Maness PF. Band 3 tyrosine kinase in avian erythrocyte plasma membrane is immunologically related to pp60^{c-src}. *American J Physiology* 1987; 253 (Cell Physiol 22), C286-C295 PMID: 2441608

Shores CG, Cox ME and Maness PF. A tyrosine kinase related to pp60^{c-src} is associated with membranes of *Electrophorus electricus* electric organ. *J Biol Chem* 1987;262:9477-9485 PMID: 3036862

Griffith J and Shores CG. RecA protein rapidly crystallizes in the presence of spermidine: a valuable step in its purification and physical characterization. *Biochemistry* 1985;24:158-162 PMID: 3888255

Presentations:

International

Mwafongo A, Wolf L, Moses A, Chilima C, Owino M, Hosseinpour M, and Shores C. Cancer Trends at Kamuzu Central Hospital, Lilongwe, Malawi. African Organization for Research and Training in Cancer (AORTIC) biannual meeting, Cairo, Egypt December 2011

Shores C and Charles A. Establishing a collaborative academic surgical program. College of Surgeons of East, Central and Southern Africa Annual meeting, Lusaka Zambia, December 2011

Lai V, George J, Richey L, Cannon T, Kim HJ, Shores C, Couch M. Efficacy of cox-2 inhibitors on tumor anorexia-cachexia syndrome in patients with cancer of the head and neck and gastrointestinal tract. Poster presentation, 3rd International Cachexia Conference, Rome Italy, December 2005

Cannon T, Shores C, Couch M. The Effect of Altered TLR4 Signaling on the Development of Cancer Cachexia, Poster presentation, 3rd International Cachexia Conference, Rome Italy, December 2005

Cannon T, Couch M, Shores C, An Animal Model of Human Head and Neck Cancer Cachexia, Poster presentation, 3rd International Cachexia Conference, Rome Italy, December 2005

National

Moses A, Bigger E, Wolf L, Owino M, Mwafongo A, Chikasema M, Chiwoko L, Hosseinpour M, Shores C. Factors associated with Cancer Pathogenesis among patients attending oncology clinic at Kamuzu central Hospital in Malawi, 13th International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI) November 2011, Bethesda Maryland

Wolf LL, Ibrahim R, Miao C, Muyco A, Hosseinpour M, and Shores C. Esophagogastroduodenoscopy In A Public Referral Hospital In Malawi: Use Of Retrospective Review To Improve Resource Allocation. 4th Annual ASAP Meeting: Building Sustainable Surgical Systems, November 2011 San Diego

Qureshi J, Muyco A, Young S, Shores C, Charles A. Collaborating To Create A Surgical Training Program In Sub-Saharan Africa: A Paradigm For Health System Improvement, 4th Annual ASAP Meeting: Building Sustainable Surgical Systems, November 2011 San Diego

J. Qureshi, S. Young, E. Borgstein, A. Charles, C. Shores, A. Muyco, W. Mulwafu, A. Viste, N. Mkandawire. Addressing Africa's Surgical Workforce Crisis: A Sustainable Paradigm for Training and Collaboration. American College of Surgeons Clinical Congress, November 2011 San Francisco

Smyth JK, Huang BY, Deal AM, Zanation AM and Shores C, G Comparison of Outcomes for Head and Neck Squamous Cell Carcinoma Patients with N3 Neck Disease Treated Primarily with Chemoradiation versus Surgical Resection, Triologic Society Combined Sections Meeting, Scottsdale AZ, January 2011

Patel MR, Stadler MI, Deal AM, Kim HS, Shores CG, and Zanation AM, STT3A, C1orf24, TTF3: Putative Markers for Characterization of Follicular Thyroid Neoplasms from Fine Needle Aspirates, Winner John E Bordley Resident Research Award (Southern Section), Triologic Society Combined Sections Meeting, Scottsdale AZ, January 2011

Blanks DA and Shores CG, Patent Piriform Sinus Fistula in a Third Branchial Cleft Cyst, Triologic Annual Meeting, Combined Otolaryngologic Society Meetings, Las Vegas NV, April 2010

Bigger E, Shores CG and Hosseinipour M, Epidemiology of malignancies in HIV patients at Kamuzu Central Hospital in Lilongwe, Malawi, International Conference on Malignancies in AIDS and Other Acquired Immunodeficiencies (ICMAOI), April 2010 Bethesda, MD

Fried D, Weissler M, Shores C, Couch M, J Hayes N, Chera B Incidence of Persistent Nodal disease after Non-surgical Therapy in Head and Neck Squamous Cell Carcinoma patients with Bilateral Nodal Disease: Can a Bilateral Neck Dissection be Avoided? ASTRO Annual, Meeting, Chicago IL, November 2009

Harmon P, Gulley M; Tang W; Kazembe P; Wokocho C; Mwansambo C; Martinson F; Hoffman M, Hoffman I; Shores C. Viral Response to Chemotherapy in Endemic Burkitt Lymphoma, American Academy of Otolaryngology Annual Meeting, Washington DC, September 2009

Surowitz JB, Shah RN, Zanation AM, Weissler MC, Shores CG, A Three Layer Closure Technique Diminishes Fistula Rates in Previously Chemoradiated Total Laryngectomy Patients, American Head and Neck Society Meeting, Phoenix, AZ, May 2009

Cannon T, Patel MR; Bryson P, Leight D, Lai V, Deal A., Shores CG. Incidence and Detection of Liver Metastasis in Head and Neck Squamous Cell Carcinoma, American Head and Neck Society Meeting, San Francisco, July 2008

Yin X, Couch M, Shores CS. Antitumor effect of Enzastaurin on head and neck cancer, American Head and Neck Society Meeting, San Francisco, July 2008.

Harmon P, Gulley M; Tang W; Kazembe P; Wokocho C; Mwansambo C; Martinson F; Hoffman M, Hoffman I; Shores C. Viral Response to Chemotherapy in Endemic Burkitt Lymphoma American Head and Neck Society Meeting, San Francisco, July 2008 (preliminary data)

Bryson P, Shores C, Hart C, Thorne L, Patel M, Richey L, Farag A and Zanation A. Immunohistochemical Validation of Microarray Gene Expression Differences between Follicular Adenomas and Follicular Carcinomas. American Head and Neck Society Meeting, Chicago, May 2007

Lee SC, Yin X, Zanation A, Couch M, Shores CG, Hayes DN. Cross platform validation of head and neck squamous cell carcinoma tumor subtypes found by expression profiling, Poster presentation at the Annual Meeting of the American Association of Cancer Research, Washington DC, April 2006

Yin X and Shores CG. Classification of Head and Neck squamous cell carcinomas and identification of genes associated with cisplatin sensitivity using oligo microarray, Poster presentation at the Annual Meeting of the American Association of Cancer Research, Anaheim CA, March 2005

Moss J, Zanation A and Shores CG. ACE Inhibitor Associated Recurrent, Intermittent Parotid Gland Swelling. Poster presentation Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, New York, NY, September 2004

Shores CG and Yin X. Prediction of Chemo-Sensitivity in HNSCC Cell Lines by Analysis of Gene Expression Profiles. Oral presentation International Head and Neck Cancer Meeting, Washington DC, August 2004

Yin X, Zhang H, Burrows F and Shores C. Evaluation of the effect of Hsp90 Inhibitors on Head and Neck Squamous Cell Carcinoma Cell Lines. Poster presentation Annual Meeting of the American Association of Cancer Research, Orlando, FL March 2004

Shores CG, Yin X, Funkhouser W and Yarbrough WG. Cytokeratin 14 Quantitative RT-PCR vs Routine Pathology for Detection of HNSCC Micrometastasis. Oral presentation, Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, Orlando FL, September 2003.

Becker, M, Shores CG, Yu KK and Yarbrough WG. Molecular assay to detect metastatic head and neck squamous cell carcinoma. Poster presentation, American Head and Neck Society Annual Meeting, Nashville, TN, May 2003

Becker M, Yu KK, Yarbrough WG and Shores CG. Quantitative cytokeratin RT-PCR detection of lymph node metastasis in SCCA. Oral presentation, Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, Denver, CO, September 2001.

Yu KK, Mukherji MK, Carrasco V, Pillsbury HC. and Shores CG. Molecular Genetic Advances in Semicircular Canal Abnormalities: Report of 16 Cases Poster presentation, Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, winner of the resident research award, Denver, CO, September 2001.

Rohlfes EM, Zariwala M, Booker JK, Roche MI, Powell CM, Silverman LM and Shores CG Mutational analysis of GJB2 in an unselected deaf population. Poster presentation, American Society of Human Genetics Annual Meeting, Chicago, IL, 2000.

Roche MI, Rohlfes EM, Booker JK, Zariwala M, Silverman LS, Shores CG, and Powell CM. Types of Referrals to Genetics Clinic from an ENT Clinic Following GJB2 Testing. Poster presentation, American Society of Human Genetics Annual Meeting, Chicago, IL, 2000.

Shores CG and Yarbrough WG. Molecular Basis of Otolaryngologic Diseases. Course taught at the Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, New Orleans, LA, September 1999.

Shores CG and Yarbrough WG. Molecular Basis of Otolaryngologic Diseases. Course taught at the Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, San Antonio, TX, September 1998.

Shores CG and Yarbrough WG. Expression of p16 β . Oral presentation, Annual Meeting of the American Academy of Otolaryngology/ Head and Neck Surgery, San Francisco, CA, September 1997.

Shores CG, Liu E, and Yarbrough WG. Expression of p16 β in Human Tumor Cell Lines. Oral presentation, Annual Meeting of the American Association of Cancer Research, San Francisco, CA, September 1997.

Shores CG, Luttrell DK, Turk BF, and Gilmer TM. The sensitivity of cells to the tyrosine kinase inhibitors ST280 and SW38 is increased by transformation with the v-src oncogene. Poster presentation, Keystone Symposia on Growth Factor Signal Transduction, Steamboat Springs, CO, 1991.

Shores CG and Maness PF. Tyrosine phosphorylated proteins accumulate in junctional regions of the developing chick neural retina. Oral presentation, American Society of Neurochemistry Meeting, Chicago, IL, 1991.

Shores CG and Maness PF. A src-related protein tyrosine kinase in the electric eel. Poster presentation, RNA Tumor Viruses, Cold Spring Harbor, NY, 1985.

Regional

Shores C, Charles A, Smyth J. Surgery Residency Training in Lilongwe, Malawi, NC/SC Otolaryngology Meeting, Charleston, SC, July 2011

Shores, CS. Salvage Surgery after Chemoradiation, NC/SC Otolaryngology Meeting, Pinehurst, NC, July 2008.

Lai V, Zanation AM, Couch ME, Weissler MC, Shockley WW and Shores CG. Utilization of PET/CT scanning for identification of the primary site in unknown primary squamous cell carcinoma of the head and neck. Poster presentation American Laryngological, Rhinological and Otological Society Southern Section Meeting, Naples, FL. Winner of the Resident Poster Award, January 2006

Zanation AM, Sutton DK, Couch M, Weissler MC, Shockley W and Shores CG. Accuracy, and Implications for Patient Management of [18F]-2-Fluorodeoxyglucose-Positron Emission/Computerized Tomography (PET/CT) for Head and Neck Tumors. Oral presentation American Laryngological, Rhinological and Otological Society Southern Section Meeting, Miami, FL. Winner of the 2005 Lloyd Storrs Resident Research Award, January 2005

Shores CG. Total Laryngectomy: Indications and Procedure. The North Carolina Speech, Hearing and Language Association 49th Annual Convention, Raleigh NC, April 2003.

Shores CG. Genetic Basis of Hearing Loss. 12th Annual Leo M. Croghan Conference on Developmental Disabilities, Raleigh, NC, December 2000.

Shores CG and Yarbrough WG. Evaluation of Prelingual Deafness in the New Millenium: Genetic Testing. Winner of the best poster presentation American Laryngological, Rhinological and Otological Society Southern Section Meeting, St Petersburg FL, January 2000.

Shores CG and Yarbrough WG. Three-dimensional xenograft model of dysplastic human laryngeal mucosa. Oral presentation and winner of the G. Slaughter Fitz-Hugh Award for Resident Research, American Laryngological, Rhinological and Otological Society Southern Section Meeting, Orlando FL, January 1998.

Shores CG and Meredith SD. Laryngeal Manifestations of Gout. Oral presentation, Annual Meeting of the NC/SC ENT Society. Myrtle Beach, SC, August 1997.

Fults DW, Cox ME, Matten WT, Shores CG and Maness PF. Two developmental phases of pp60^{c-src} expression in the neuronal lineage. Poster presentation, 28th Southeastern Regional Developmental Biology Conference. Beauford, NC, 1986.

Local

Shores CG. Cochlear Implantation and Usher's Syndrome. RP/Ushers FunFest, Salisbury, NC, November 2000.

TEACHING RECORD:

Consultant for the Kamuzu Central Hospital General Surgery Residency program, Lilongwe, Malawi. 2-3 trips each year to Malawi for classroom, clinic and operating room teaching of general surgery residents 2006 to present

Anatomical tutorials in head and neck anatomy lab (MSI). 2000 to present

Soft tissue course taught quarterly at the beginning of the third year surgery clerkship. 2000 to present

Shores CG Airway Emergencies, presentation to UNC Surgery Intensive Care Grand Rounds May 19, 2011

Shores CG Head and Neck Cancer Staging, Society of Otorhinolaryngology and Head-Neck Nurses Grand Rounds, March 5, 2011

Director of the Otolaryngology section of the second year medical school course, Nervous System and Special Senses. January 2002 to 2008.

Hearing Loss: Evaluation and Management, Nervous System and Special Senses Course, yearly lecture to MSII, 2000 to 2008.

SICU Nursing Lecture 2008

Shores CG Compare and Contrast: Tracheostomy and Total Laryngectomy, Respiratory Therapy Grand Rounds, September 2006

Shores CG Tracheostomy, Emergency Medicine Grand Rounds, December 2004

Shores CG Microarray Analysis of Head and Neck Squamous Cell Carcinomas, Pathology Grand Rounds, November 2004

Shores CG Tissue Procurement at UNC: How to put tissue in and get data out, Surgical Grand Rounds, March 2004

Shores CG Compare and Contrast: Tracheostomy and Total Laryngectomy, Respiratory Therapy Grand Rounds, October 2003

Shores CG Tracheostomy Care, Medicine Intern Lecture, September 2003

Shores CG. The Genetics of Hearing Loss. UNC Pediatric Grand Rounds, November 2000.

Developed and taught course entitled "The Molecular Basis of Otolaryngological Diseases" at the American Academy of Otolaryngology-Head and Neck Surgery Annual Meeting (1998 and 1999).

Mentored Students and Residents:

Gift Mulima MD, KCH Surgery resident, 2011-2012, Prevalence, Management and Outcomes of Patients Presenting with Upper Gastrointestinal Bleeding to Kamuzu Central Hospital, Lilongwe, Malawi

Yohannie Mlombe MD, Fogarty Fellow in Malawi 2011-2012, Analysis of risk factors for esophageal cancer in Malawi.

Judith Mkwaila MD, KCH Surgery resident. I serve as Dr Mkwaila's faculty advisor, 2012

Dan Olson MD, Fogarty Fellow in Malawi 2010-2011, Phase I study of valacyclovir with cyclophosphamide in Burkitt lymphoma.

Lindsey Wolf MS4, UCSF, Doris Duke Fellow in Malawi 2010-2011, Epidemiology of cancer presenting to Kamuzu Central Hospital

Elizabeth Bigger MD PGY4, Fogarty Fellow in Malawi 2009-2010, establishment and design of the KCH Malawi Cancer Registry, and clinical study of HIV infection and Cancer in Malawi.

Mihir Patel MD PGY2- 2007-2009 rotation on T32 grant, continuing immunohistochemistry project to diagnose follicular thyroid adenoma versus carcinoma. Received the two year American Head and Neck Society Young Investigator Award for this project.

Jessica Smyth MD PGY2 2009 rotation, Ameloblastomas in Malawi, Outcomes of treatment in N3 neck disease, and analysis of outcomes of patients presenting to UNC with N3 neck disease.

Paula Harmon MD PGY2- 7/2007-1/2008 research rotation, EBV in Burkett's Lymphoma clinical trial. Received the American Academy of Otolaryngology/Head and Neck Surgery Foundation Resident Research Award for this project.

Elizabeth Andrews DDS- PhD student in dental pathology. I serve on her PhD committee, 5/2006-5/2009

Adam Zanation MD 2003-2008 I served as Adams career advisor. He conducted research in my lab as a second year resident.

Farhad Ardeshipour MS4 – 2006-2007 Doris Duke Fellow, currently writing a clinical trial involving chemoradiation for patients with advanced skin squamous cell carcinoma

Steve Lee MD PGY2, 6/2005-12/2006 research rotation in the lab, analyzing microarray data from head and neck squamous cell carcinoma patients.

Paul Bryson MD PGY2 10/2005-4/2006 research rotation working in my lab, immunohistochemistry to diagnose follicular thyroid adenoma versus carcinoma. Received the University of North Carolina Alumni Award for this project.

Luther Richey MS4 – 2005-2006 Doris Duke Fellow, wrote and completed a clinical trial defining cancer cachexia in head and neck cancer patients

Trinitia Cannon MD 7/2004 to 6/2006 research rotation in my lab developing an animal model of head and neck cancer cachexia, supported by the Otolaryngology T32 grant.

Alexander Farag MS2 (Medical University of Ohio, Toledo, Ohio)– 2006 Summer rotation supported by the Otolaryngology T32 grant, immunohistochemistry project started by Paul Bryson PGY3.

David Sutton MS 8/2004 to 6/2005 As a third year medical student David worked on a year long project in my lab to establish a web based head and neck cancer data base.

Jonathan Moss MD –8/2003 to 6/2004 research rotation examining radiation induced gene expression changes in head and neck squamous cell carcinoma. He was funded by the NIH training grant "Research Training in Otolaryngology". T32-005360, Paul Manis, PI.

William Wood MD – As a fourth year medical student, Bill worked in my lab from 8/2003-6/2004.
Funded by:
Medical Alumni Endowment Fund (\$2,000) and NIH Short Term Research Training Program (\$4,500).

Katheryn Campbell MSI - Medical school advisor 2001-2005

Andrea Parsons MD - Medical school advisor 2001-2005

Rebecca Stone MD - I served as her medical school advisor 2001-2002.

GRANTS:

I have received funding to support the development of cancer research infrastructure at Kamuzu Central Hospital in Malawi from a variety of sources. An online database of cancer cases presenting to all departments in the hospital has been established in collaboration with the UNC Lineberger Comprehensive Cancer Center, and recorded over 2000 cases from January 2010 to present. A KCH and the UNC Project collaborative pathology lab opened in July 2011, enabling us to establish pathologic diagnosis in patients presenting to KCH. Tissue procurement capabilities for current and future studies will be opened with IRB approval with the pathology lab. Ongoing specific cancer projects include:

1. An epidemiology study of comorbid infections (HIV, Hep B, schistosomiasis and active malaria) and patient demographics with presentation of cancer at KCH
2. Evaluation of risk factors and comorbid infections of esophageal cancer in Malawi. Esophageal cancer is the second most common cancer at KCH in both men and women. Although smoking can increase risk, many of our patients are non-smokers. We are collecting demographic data and tissue to examine risk factors for this cancer.

3. Prevalence, Management and Outcomes of Patients Presenting with Upper Gastrointestinal Bleeding (UGIB) to Kamuzu Central Hospital, Lilongwe, Malawi. Many patients with esophageal cancer present with UGIB, but most UGIB is associated with esophageal varices. This is a deadly disease in a resource poor setting, and this study will examine risk factors for poor outcomes.

These activities are supported by:

<u>Active Grants</u>		<u>% Effort</u>
UNC University Research Council Small Grant Program	1/1/12-1/1/13	5%
Principal Investigator: Carol G Shores, MD PhD	\$5,000	
Title: Prevalence, Management and Outcomes of Patients Presenting with Upper Gastrointestinal Bleeding to Kamuzu Central Hospital, Lilongwe, Malawi		
NIH Fogarty International Center	7/1/11-7/1/12	
Fogarty International Research Fellowship		
Principle Investigator: Yohannie Mlombe MD		
Title: Analysis of risk factors for esophageal cancer in Malawi		
I served as Dr Mlombe's faculty advisor.		
<u>Completed Grants:</u>		
NC TraCS #3-42075	5/1/10-9/30/11	10%
North Carolina TraCS Institute		
Principal Investigator: Carol G Shores, MD PhD	\$50,000	
Title: Comorbid Infections and Cancer in Malawi		
University Cancer Research Fund # 6-34272	4/1/10-4/1/11	2.5%
Lineberger Comprehensive Cancer Center	\$12,000	
Principal Investigator: Carol G Shores, MD PhD		
Title: Cancer database and tissue procurement in Malawi		
Doris Duke Fellowship	7/1/10-7/1/11	
Doris Duke Foundation Fellowship		
Principle Investigator: Lindsey Wolf MS4, UCSF		
I serve as Ms Wolf's faculty advisor.		
HIV/AIDS Associated Cancers RFA, # not defined	2/1/09-2/1/10	2.5%
Lineberger Cancer Center and the UNC CFAR		
Principal Investigator: Carol G Shores, MD PhD	\$20,000	
Title: Cancer database and tissue procurement in Malawi		
NIH Fogarty International Center	7/1/09-7/1/10	
Fogarty International Research Fellowship		
Principle Investigator: Elizabeth Bigger MD		
Title: Comorbid infections and cancer in Malawi		
I served as Dr Biggers faculty advisor.		

Burkitt lymphoma (BL) is the most common pediatric cancer in sub-Saharan Africa and is associated with Epstein-Barr Virus (EBV). In a proof of principle study, we demonstrated increased EBV viral particles in tumor biopsies after the first dose of cyclophosphamide, suggesting that the virus had converted to a lytic infection. During the lytic cycle, EBV expresses proteins that make it susceptible to antiviral therapy. Dr Dan Olson is currently running a phase I clinical trial of valacyclovir and

cyclophosphamide in children with BL at Kamuzu Central Hospital. I have applied for NCI R01 funding for a phase 2 trial.

NIH Fogarty International Center 7/1/10-7/1/11 5%
Fogarty International Research Fellowship
Principle Investigator: Dan Olson MD \$85,000
Title: Phase 1 trial of valacyclovir and cyclophosphamide therapy in Burkitt Lymphoma.
I serve as Dr Olson's faculty advisor.

3R01CA066519-09S1 2/13/95-1/31/08 10%
National Cancer Institute \$86,000
PI- Shannon Kenney MD PhD, I took over as PI for this portion of the grant when Dr Kenney left UNC.
Title: The Effect of Cytotoxic Therapy on Inducing Lytic Epstein-Barr Virus in EBV-Associated Malignancy

Agency # not defined 7/1/07-6/30/08
American Academy of Otolaryngology/Head and Neck Surgery
Resident Research Award
Principle Investigator: Paula Harmon MD PGY2
Title: Viral response to therapy in endemic Burkett's lymphoma
I served as Dr Harmon's faculty advisor.

Fine needle aspiration of thyroid nodules is the standard of care, but can present diagnostic dilemmas. This study seeks to determine if protein expression can predict the presence or absence of thyroid cancer in fine needle aspirations.

American Head and Neck Society Young Investigators Award 7/1/06-6/30/08
Principle Investigator: Mihir Patel MD PGY2 \$25,000
Title: Immunohistochemical Microarray Gene Expression Differences of Thyroid Neoplasms
I serve as Dr Patel's faculty advisor.

Agency # not defined 6/1/05-5/31/06
Medical Alumni Endowment Fund, UNC \$5,000/year
Principle Investigator: Paul Bryson, MD PGY2
Title: Genetic Profiling and Immunohistochemistry of Follicular Thyroid Lesions
I serve as Dr Bryson's faculty advisor.

Clinical Trials

Open

LCCC 1108 Development of a Tumor Molecular Analyses Program and Its Use to Support Treatment Decisions

Principle Investigator: H. Shelton Earp MD
I serve as a co-investigator and on the Clinical Committee

LCCC 1037: Accuracy of Ultrasound Guided FNA in Detecting Persistent Disease in Lymph Nodes of Patients with Head and Neck Squamous Cell Carcinoma after Definitive Chemoradiotherapy

Principle Investigator: Trevor Hackman MD
I serve as a co-investigator

IRB 09-1561 LCCC0917 Comorbid Infections and Cancer in Malawi
Principal Investigator: Carol Shores, MD PhD

Co-investigators: Elizabeth Bigger MD, Mina Hosseinipour MD MPH, Agnes Moses, MD, Michael Owino, MS MPH

Sponsor: LCCC Center for AIDS Research, NC TraCS, UNC University Cancer Research Fund

LCCC0121/01-SURG-631-ORC Molecular analysis of head and neck cancers

Principal Investigator: Carol Shores MD PhD

Co-Investigators: William W. Shockley MD; Mark C. Weissler MD, Marion Couch MD PhD, Susan Hayden RN, William K. Funkhouser, MD PhD, Neil Hayes MD, Benjamin Haithcock MD, Adam Zanation MD, Bhishamjit Chera MD

Sponsor: National Institute of Dental and Craniofacial Research, NIH; 2005 American Head and Neck Society Percy Award

IRB 09-0779 LCCC0904 Procurement Of Tumor Tissue In Malawi

Principal Investigator: Carol Shores, MD PhD

Co-investigators: Elizabeth Bigger MD, Mina Hosseinipour MD MPH, Agnes Moses, MD

Sponsor: LCCC Center for AIDS Research, NC TraCS, UNC University Cancer Research Fund

IRB 10-1451 Accuracy of DW-MRI and DCE-MRI in Detecting Persistent Disease in Lymph Nodes of Patients with Head and Neck Squamous Cell Carcinoma After Definitive Chemoradiotherapy

PIs: Bhishamjit Chera and Benjamin Huang

Co-investigators: Jian-Ming Zhu, Yueh Lee, Mark Weissler, Lisa Weinstein, Carol Shores, Trevor Hackman, David Neil Hayes

Sponsor : UNC Department of Radiation Oncology

IRB 11-0289 LCCC1037 Accuracy of ultrasound guided FNA in detecting persistent disease in lymph nodes of patients with head and neck squamous cell carcinoma after definitive chemoradiotherapy

PI: Trevor Hackman

Co-investigators: David Neil Hayes, Ben huang, Yasmin Qaquish, Carol Shores, Brian Thorp, Mark Weissler, Adam Zanation

Sponsor: None

IRB 11-0381 RTOG1008 A Randomized Phase II Study of Adjuvant Concurrent Radiation and Chemotherapy versus Radiation Alone in Resected High-Risk Malignant Salivary Gland Tumors

PI: Bisham Chera

Co-investigators: Juneko Grilley-Olson, Trevor Hackman, David Neil Hayes, William Shockley, Carol Shores, Mark Weissler, Adam Zanation,

Sponsor: RTOG

IRB 07-0497 OSI3602s: Multi-Center Randomized Phase II Study of Erlotinib, Cisplatin and Radiotherapy versus Cisplatin and Radiotherapy in Patients with Stage III and IV Squamous Cell Carcinoma of the Head and Neck

PI: David Neil Hayes

Co-investigators: Julian Rosenman, Carol Shores, David Morris, Juneko Grilley-Olson, William Shockley, Stephen Bernard, Bhisham Chera and Jared Weiss

Sponsor: Genentech, Inc, OSI Pharmaceuticals

Closed to Accrual

IRB 10-0962 LCCC1014 Phase I study of valacyclovir and cyclophosphamide for endemic Burkitt lymphoma

Principal Investigator: Carol Shores, MD PhD

Co-investigators: Charles Mwansambo FRCPCH (UK), Dan Olson MD, Mina Hosseinipour MD MPH, Stuart Gold MD
Sponsor: Fogarty Fellowship to Dan Olson

IRB# 09-0064 Viral Association with Odontogenic Tumors in Malawi
Principal Investigator: Jessica Smyth MD
Faculty Advisor: Carol Shores, MD PhD
Co-investigators: Dirk Dittmer, PhD
Sponsor: None

IRB 07-1220 NCI7918-A Phase II Study of AZD6244 in Iodine-131 Refractory Papillary Thyroid Carcinoma and Papillary Thyroid Carcinoma With Follicular Elements
PI: David Neil Hayes
Co-investigators: Carol Shores, Julian Rosenman, David Morris
Sponsor: NCI

04-MED-753 Viral Response to Chemotherapy in Endemic Burkitt Lymphoma
Principal Co-Investigators: Carol Shores and Peter N. Kazembe
Co-Investigators: Charles Mwansambo, Francis Martinson, Irving Hoffinan, Margaret Gulley, Paula Harmon
Sponsor: The University of North Carolina Center for AIDS Research and The UNC Project in Malawi; NIH Supplement to R01-CA66519; American Academy of Otolaryngology/Head & Neck Surgery Resident Research Award; UNC Medical Alumni Endowment Fund Grant

PROFESSIONAL SERVICE:

Professional Societies:

American Academy of Otolaryngology/Head and Neck Surgery, Member

American Association for Cancer Research, Active Member

American College of Surgeons, Fellow

College of Surgeons of East, Central and Southern Africa, Fellow

American Head and Neck Society, Member

Lineberger Comprehensive Cancer Center, Member

Professional Service:

UNC Otolaryngology/Head & Neck Surgery Faculty Development Committee 2011 to present

WHO Global Initiative for Emergency and Essential Surgical Care (GIEESC) Surgical Mission & Partnerships Coordinating Committee Member 2011 to present

American Head and Neck Society Humanitarian Committee 2009 to present

American Academy of Otolaryngology/Head & Neck Surgery Foundation Committee- CORE Study Section 2006 to present

Lineberger Comprehensive Cancer Center Protocol Review Committee- 2000 to present

Lineberger Comprehensive Cancer Center Data Safety Monitoring Committee Co-Chair- 2004-2008

Medical Director, Lineberger Comprehensive Cancer Center Tissue Procurement Core Facility 2002-2008

North Carolina Society of Otolaryngology and Head & Neck Surgery, AAOHNS Alternate Governor, State Legislation 2006-2009

RESEARCH STATEMENT:

My current research interests are investigating cancer epidemiology at Kamuzu Central Hospital in Lilongwe, Malawi. Working with the UNC Division of Infectious Disease UNC Project, we have developed an online Cancer Registry for the KCH which is providing preliminary data for research in several areas that I help direct, including head and neck cancer, esophageal cancer, breast cancer and lymphoma. I am working to improve the capabilities of diagnosis and staging of head and neck cancer at KCH by training local surgery residents. Human papilloma virus (HPV) is associated with cervical cancer, the most common cancer in woman at KCH. In the US, HPV associated oropharyngeal cancer is rapidly increasing in incidence, but nothing is known about this disease in sub-Saharan Africa. We are developing the infrastructure to address this research question.

Epstein Barr Virus (EBV) is associated with several different cancers, including Burkett's Lymphoma. This tumor is rare in North America, but is a common childhood cancer in sub-Saharan Africa. In tissue culture and animal models, EBV shifts from a drug resistant latent infection to a drug sensitive lytic infection when exposed to chemotherapy. Working with Paula Harmon PGY, we have shown demonstrated viral replication in fine needle aspirates of children with BL 24 hours after the first dose of chemotherapy. A phase I trial of the antiviral drug valacyclovir with cyclophosphamide in children with BL has been completed, and we are awaiting funding for the phase II trial.

Working with Xiaoying Yin, MD, and Neil Hayes, MD (UNC Division of Medical Oncology), we have collected hundreds of HNSCCA tumors from our patients at UNC. Using this tissue bank, we are generating microarray expression data to compare gene expression in tumors that do and do not respond to combined chemoradiation. I continue to facilitate the collection of these tissues.

REFLECTIVE STATEMENT:

I maintain an active clinical practice and teach during all aspects of providing clinical care. On the Otolaryngology/Head & Neck service, attendings follow their own patients year round, so I am always attending for my patients in the operating rooms, clinics and wards. With the support of the Head and Neck Division, I am able to travel to Malawi for 2-3 week trips 3-4 times a year. I precept Otolaryngology/Head & Neck Surgery residents, UNC and visiting medical students during in the clinic and operating room. Formal teaching of the same groups includes monthly lectures and attending rounds.

I travel to Kamuzu Central Hospital, Lilongwe Malawi, 2-4 times a year, where I precept general surgery residents (the only residency program of any kind in the country). I give lectures and teach on

the wards and in the operating rooms to clinical officers students and medical students and interns who are rotating through KCH.